<110>   Affibody AB

<120>   Polypeptides having binding affinity for HER2

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<140>   PCT/SE2004/001049
<141>   2004-06-30

<150>   SE0301987-4
<151>   2003-07-04

<150>   SE0400275-4
<151>   2004-02-09

<160>   79

<170>   PatentIn version 3.3

<210>   1
<211>   58
<212>   PRT
<213>   Synthetic polypeptide

<400>   1

Val Asp Asn Lys Phe Asn Lys Glu Gln Gln Asn Ala Phe Tyr Glu Ile
1   5   10   15

Leu His Leu Pro Asn Leu Asn Glu Glu Gln Arg Asn Ala Phe Ile Gln
                20   25   30

Ser Leu Lys Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
        50   55

<210>   2
<211>   58
<212>   PRT
<213>   Synthetic polypeptide

<400>   2

Val Asp Asn Lys Phe Asn Lys Glu Leu Arg Gln Ala Tyr Trp Glu Ile
1   5   10   15

Gln Ala Leu Pro Asn Leu Asn Trp Thr Gln Ser Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210>   3
<211>   58
<212>   PRT
<213>   Synthetic polypeptide

<400>   3

Val Asp Asn Lys Phe Asn Lys Glu Pro Lys Thr Ala Tyr Trp Glu Ile
1   5   10   15

Val Lys Leu Pro Asn Leu Asn Pro Glu Gln Arg Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210>   4
<211>   58
<212>   PRT
<213>   Synthetic polypeptide

<400>   4

Val Asp Asn Lys Phe Asn Lys Glu Pro Arg Glu Ala Tyr Trp Glu Ile
1   5   10   15

Gln Arg Leu Pro Asn Leu Asn Asn Lys Gln Lys Ala Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210>   5
<211>   58
<212>   PRT
<213>   Synthetic polypeptide

<400>   5

Val Asp Asn Lys Phe Asn Lys Glu Trp Val Gln Ala Gly Ser Glu Ile
1   5   10   15

Tyr Asn Leu Pro Asn Leu Asn Arg Ala Gln Met Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Ser Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 6
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 6

Val Asp Asn Lys Phe Asn Lys Glu Met Arg His Ala Tyr Trp Glu Ile
1   5   10   15

Val Lys Leu Pro Asn Leu Asn Pro Arg Gln Lys Arg Ala Phe Ile Arg
        20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 7
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 7

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Lys Ala Tyr Trp Glu Ile
1   5   10   15

Val Leu Leu Pro Asn Leu Asn Arg Arg Gln Ser Arg Ala Phe Ile Arg
        20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 8
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 8

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Val Asp Asn Lys Phe Asn Lys Glu Met Arg His Ala Tyr Trp Glu Ile
1               5               10              15

Ala Thr Leu Pro Asn Leu Asn Asn Val Gln Lys Arg Ala Phe Ile Arg
            20              25              30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35              40              45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50              55
```

<210>   9
<211>   58
<212>   PRT
<213>   SYNTHETIC POLYPEPTIDE

<400>   9

```
Val Asp Asn Lys Phe Asn Lys Glu Phe Arg Thr Ala Tyr Trp Glu Ile
1               5               10              15

Val Leu Leu Pro Asn Leu Asn Pro Gly Gln Ile Arg Ala Phe Ile Arg
            20              25              30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35              40              45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50              55
```

<210>   10
<211>   58
<212>   PRT
<213>   SYNTHETIC POLYPEPTIDE

<400>   10

```
Val Asp Asn Lys Phe Asn Lys Glu Leu Arg Thr Ala Tyr Trp Glu Ile
1               5               10              15

Val Leu Leu Pro Asn Leu Asn Thr Trp Gln Ile Arg Ala Phe Ile Arg
            20              25              30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35              40              45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50              55
```

<210>   11

<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 11

Val Asp Asn Lys Phe Asn Lys Glu Pro Arg Lys Ala Tyr Trp Glu Ile
1   5   10   15

Ala Val Leu Pro Asn Leu Asn Pro Ala Gln Lys Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 12
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 12

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Asn Ala Tyr Trp Glu Ile
1   5   10   15

Ala Leu Leu Pro Asn Leu Asn Asn Gln Gln Lys Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 13
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 13

Val Asp Asn Lys Phe Asn Lys Glu Leu Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Val Gly Leu Pro Asn Leu Asn His Phe Gln Val Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
      50   55

<210> 14
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 14

Val Asp Asn Lys Phe Asn Lys Glu Leu Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Val Leu Leu Pro Asn Leu Asn Arg Trp Gln Ile Arg Ala Phe Ile Arg
            20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
      50   55

<210> 15
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 15

Val Asp Asn Lys Phe Asn Lys Glu Ile Arg Asn Ala Tyr Trp Glu Ile
1   5   10   15

Ala Leu Leu Pro Asn Leu Asn Asn Met Gln Lys Arg Ala Phe Ile Arg
            20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
      50   55

<210> 16
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 16

Val Asp Asn Lys Phe Asn Lys Glu Phe Arg Lys Ala Tyr Trp Glu Ile
1   5   10   15

Val Val Leu Pro Asn Leu Asn Arg Met Gln Ile Arg Ala Phe Ile Arg

                    20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210>   17
<211>   58
<212>   PRT
<213>   SYNTHETIC POLYPEPTIDE

<400>   17

Val Asp Asn Lys Phe Asn Lys Glu Phe Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Val Leu Leu Pro Asn Leu Asn Arg Glu Gln Gly Arg Ala Phe Ile Arg
            20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210>   18
<211>   58
<212>   PRT
<213>   SYNTHETIC POLYPEPTIDE

<400>   18

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Ala Thr Leu Pro Asn Leu Asn Asn Lys Gln Ile Arg Ala Phe Ile Arg
            20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210>   19
<211>   58
<212>   PRT
<213>   SYNTHETIC POLYPEPTIDE

<400>   19

```
Val Asp Asn Lys Phe Asn Lys Glu Phe Arg Asn Ala Tyr Trp Glu Ile
1               5                   10                  15

Val Val Leu Pro Asn Leu Asn Asn Arg Gln Lys Arg Ala Phe Ile Arg
                20                  25                  30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35                  40                  45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
        50                  55
```

<210> 20
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 20

```
Val Asp Asn Lys Phe Asn Lys Glu Phe Arg Asn Ala Tyr Trp Glu Ile
1               5                   10                  15

Ala Lys Leu Pro Asn Leu Asn Asn Gly Gln Lys Arg Ala Phe Ile Arg
                20                  25                  30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35                  40                  45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
        50                  55
```

<210> 21
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 21

```
Val Asp Asn Lys Phe Asn Lys Glu Phe Arg Gln Ala Tyr Trp Glu Ile
1               5                   10                  15

Ala Leu Leu Pro Asn Leu Asn His Ser Gln Thr Arg Ala Phe Ile Arg
                20                  25                  30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35                  40                  45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
        50                  55
```

```
<210>  22
<211>  58
<212>  PRT
<213>  SYNTHETIC POLYPEPTIDE

<400>  22

Val Asp Asn Lys Phe Asn Lys Glu Pro Arg His Ala Tyr Trp Glu Ile
1               5                   10                  15


Val Lys Leu Pro Asn Leu Asn Ser Leu Gln Lys Arg Ala Phe Ile Arg
                20                  25                  30


Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35                  40                  45


Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50                  55


<210>  23
<211>  58
<212>  PRT
<213>  SYNTHETIC POLYPEPTIDE

<400>  23

Val Asp Asn Lys Phe Asn Lys Glu Leu Arg Thr Ala Tyr Trp Glu Ile
1               5                   10                  15


Val Gly Leu Pro Asn Leu Asn Ser Arg Gln Ser Arg Ala Phe Ile Arg
                20                  25                  30


Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35                  40                  45


Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50                  55


<210>  24
<211>  58
<212>  PRT
<213>  SYNTHETIC POLYPEPTIDE

<400>  24

Val Asp Asn Lys Phe Asn Lys Glu Leu Arg Thr Ala Tyr Trp Glu Ile
1               5                   10                  15


Ala Gly Leu Pro Asn Leu Asn Pro Lys Gln Lys Arg Ala Phe Ile Arg
                20                  25                  30


Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35                  40                  45
```

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 25
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 25

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Lys Ala Tyr Trp Glu Ile
1   5   10   15

Thr Gln Leu Pro Asn Leu Asn Thr Arg Gln Thr Arg Ala Phe Ile Arg
        20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
      35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 26
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 26

Val Asp Asn Lys Phe Asn Lys Glu Phe Arg Lys Ala Tyr Trp Glu Ile
1   5   10   15

Val Leu Leu Pro Asn Leu Asn Trp Glu Gln Asn Arg Ala Phe Ile Arg
        20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
      35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 27
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 27

Val Asp Asn Lys Phe Asn Lys Glu Phe Arg Lys Ala Tyr Trp Glu Ile
1   5   10   15

```
Thr Gln Leu Pro Asn Leu Asn Arg Glu Gln Asn Arg Ala Phe Ile Arg
            20                  25                  30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35                  40                  45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50                  55
```

<210> 28
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 28

```
Val Asp Asn Lys Phe Asn Lys Glu Met Arg His Ala Tyr Trp Glu Ile
1               5                   10                  15

Ala Thr Leu Pro Asn Leu Asn Thr Asn Gln Ser Arg Ala Phe Ile Arg
            20                  25                  30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35                  40                  45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50                  55
```

<210> 29
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 29

```
Val Asp Asn Lys Phe Asn Lys Glu Met Arg Asn Ala Tyr Trp Glu Ile
1               5                   10                  15

Val Gly Leu Pro Asn Leu Asn Arg Trp Gln Ser Arg Ala Phe Ile Arg
            20                  25                  30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35                  40                  45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50                  55
```

<210> 30
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 30

Val Asp Asn Lys Phe Asn Lys Glu Leu Arg Asn Ala Tyr Trp Glu Ile
1   5   10   15

Val Lys Leu Pro Asn Leu Asn Pro Trp Gln His Arg Ala Phe Ile Arg
            20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210>   31
<211>   58
<212>   PRT
<213>   SYNTHETIC POLYPEPTIDE

<400>   31

Val Asp Asn Lys Phe Asn Lys Glu Phe Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Val Lys Leu Pro Asn Leu Asn Val Arg Gln Ser Arg Ala Phe Ile Arg
            20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210>   32
<211>   58
<212>   PRT
<213>   SYNTHETIC POLYPEPTIDE

<400>   32

Val Asp Asn Lys Phe Asn Lys Glu Asn Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Val Lys Leu Pro Asn Leu Asn Asp Tyr Gln Lys Arg Ala Phe Ile Arg
            20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210>　33
<211>　58
<212>　PRT
<213>　SYNTHETIC POLYPEPTIDE

<400>　33

Val Asp Asn Lys Phe Asn Lys Glu Phe Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Thr Gln Leu Pro Asn Leu Asn Arg Leu Gln Ser Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
        50   55

<210>　34
<211>　58
<212>　PRT
<213>　SYNTHETIC POLYPEPTIDE

<400>　34

Val Asp Asn Lys Phe Asn Lys Glu Ile Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Ala Gly Leu Pro Asn Leu Asn Ala Gln Gln Lys Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
        50   55

<210>　35
<211>　58
<212>　PRT
<213>　SYNTHETIC POLYPEPTIDE

<400>　35

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Gln Ala Tyr Trp Glu Ile
1   5   10   15

Val Arg Leu Pro Asn Leu Asn Ala Asp Gln Lys Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala

                 35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
        50   55

<210>   36
<211>   58
<212>   PRT
<213>   SYNTHETIC POLYPEPTIDE

<400>   36

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Asn Ala Tyr Trp Glu Ile
1   5   10   15

Val Thr Leu Pro Asn Leu Asn Lys Thr Gln Ser Arg Ala Phe Ile Arg
            20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
        50   55

<210>   37
<211>   58
<212>   PRT
<213>   SYNTHETIC POLYPEPTIDE

<400>   37

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Gln Ala Tyr Trp Glu Ile
1   5   10   15

Val Lys Leu Pro Asn Leu Asn Pro Gly Gln Ser Arg Ala Phe Ile Arg
            20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
        50   55

<210>   38
<211>   58
<212>   PRT
<213>   SYNTHETIC POLYPEPTIDE

<400>   38

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Ala Leu Leu Pro Asn Leu Asn Asn Met Gln Lys Arg Ala Phe Ile Arg
            20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210>   39
<211>   58
<212>   PRT
<213>   SYNTHETIC POLYPEPTIDE

<400>   39

Val Asp Asn Lys Phe Asn Lys Glu Phe Arg Lys Ala Tyr Trp Glu Ile
1   5   10   15

Ala Leu Leu Pro Asn Leu Asn Lys Trp Gln Ser Arg Ala Phe Ile Arg
            20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210>   40
<211>   58
<212>   PRT
<213>   SYNTHETIC POLYPEPTIDE

<400>   40

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Lys Ala Tyr Trp Glu Ile
1   5   10   15

Ala Leu Leu Pro Asn Leu Asn Arg Trp Gln Ile Arg Ala Phe Ile Arg
            20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210>   41
<211>   58
<212>   PRT
<213>   SYNTHETIC POLYPEPTIDE

<400> 41

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Gln Ala Tyr Trp Glu Ile
1   5   10   15

Val Leu Leu Pro Asn Leu Asn Arg Trp Gln Thr Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 42
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 42

Val Asp Asn Lys Phe Asn Lys Glu Leu Arg Lys Ala Tyr Trp Glu Ile
1   5   10   15

Val Gly Leu Pro Asn Leu Asn Arg Glu Gln Asn Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 43
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 43

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Val Gly Leu Pro Asn Leu Asn Asn Gln Gln Lys Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 44
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 44

Val Asp Asn Lys Phe Asn Lys Glu Leu Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Val Arg Leu Pro Asn Leu Asn Val Asn Gln Thr Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
        50   55

<210> 45
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 45

Val Asp Asn Lys Phe Asn Lys Glu Phe Arg His Ala Tyr Trp Glu Ile
1   5   10   15

Val Arg Leu Pro Asn Leu Asn Ala Gly Gln His Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
        50   55

<210> 46
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 46

Val Asp Asn Lys Phe Asn Lys Glu Leu Arg Lys Ala Tyr Trp Glu Ile
1   5   10   15

Val Thr Leu Pro Asn Leu Asn Pro Ser Gln His Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
      35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
     50   55

<210> 47
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 47

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Ala Lys Leu Pro Asn Leu Asn Pro Pro Gln Lys Arg Ala Phe Ile Arg
         20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
      35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
     50   55

<210> 48
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 48

Val Asp Asn Lys Phe Asn Lys Glu Leu Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Val Thr Leu Pro Asn Leu Asn Thr Ser Gln Thr Arg Ala Phe Ile Arg
         20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
      35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
     50   55

<210> 49
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 49

Val Asp Asn Lys Phe Asn Lys Glu Leu Arg Lys Ala Tyr Trp Glu Ile
1   5   10   15

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Gln Val Leu Pro Asn Leu Asn Val Arg Gln Lys Arg Ala Phe Ile Arg
            20              25              30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35              40              45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50              55
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<210> 50
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 50

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Val Asp Asn Lys Phe Asn Lys Glu Pro Arg Gln Ala Tyr Trp Glu Ile
1           5               10              15

Val Leu Leu Pro Asn Leu Asn Arg Phe Gln Lys Arg Ala Phe Ile Arg
            20              25              30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35              40              45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50              55
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<210> 51
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 51

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Val Asp Asn Lys Phe Asn Lys Glu Met Arg Asn Ala Tyr Trp Glu Ile
1           5               10              15

Val Gly Leu Pro Asn Leu Asn Gln Gly Gln Lys Arg Ala Phe Ile Arg
            20              25              30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35              40              45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50              55
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<210> 52
<211> 58
<212> PRT

<213>   SYNTHETIC POLYPEPTIDE

<400>   52

Val Asp Asn Lys Phe Asn Lys Glu Pro Arg Gln Ala Tyr Trp Glu Ile
1   5   10   15

Val Lys Leu Pro Asn Leu Asn Asn Ser Gln Arg Arg Ala Phe Ile Arg
            20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210>   53
<211>   58
<212>   PRT
<213>   SYNTHETIC POLYPEPTIDE

<400>   53

Val Asp Asn Lys Phe Asn Lys Glu Asn Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Val Arg Leu Pro Asn Leu Asn Ser Ala Gln Lys Arg Ala Phe Ile Arg
            20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210>   54
<211>   58
<212>   PRT
<213>   SYNTHETIC POLYPEPTIDE

<400>   54

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Asn Ala Tyr Trp Glu Ile
1   5   10   15

Val Leu Leu Pro Asn Leu Asn Arg Trp Gln Ser Arg Ala Phe Ile Arg
            20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys

<210> 55
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 55

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Val Ile Leu Pro Asn Leu Asn Lys Trp Gln Ile Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
        50   55

<210> 56
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 56

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Asn Ala Tyr Trp Glu Ile
1   5   10   15

Ala Leu Leu Pro Asn Leu Asn Val Ala Gln Lys Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
        50   55

<210> 57
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 57

Val Asp Asn Lys Phe Asn Lys Glu Phe Arg Gln Ala Tyr Trp Glu Ile
1   5   10   15

Val Lys Leu Pro Asn Leu Asn Ser Gly Gln His Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210>   58
<211>   58
<212>   PRT
<213>   SYNTHETIC POLYPEPTIDE

<400>   58

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Val Lys Leu Pro Asn Leu Asn Ile Ala Gln Asn Arg Ala Phe Ile Arg
        20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210>   59
<211>   58
<212>   PRT
<213>   SYNTHETIC POLYPEPTIDE

<400>   59

Val Asp Asn Lys Phe Asn Lys Glu Leu Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Val Ser Leu Pro Asn Leu Asn Arg Asn Gln Ser Arg Ala Phe Ile Arg
        20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210>   60
<211>   58
<212>   PRT
<213>   SYNTHETIC POLYPEPTIDE

<400>   60

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Asn Ala Tyr Trp Glu Ile

```
 1                5                   10                  15

Val Lys Leu Pro Asn Leu Asn Pro Gly Gln Ser Arg Ala Phe Ile Arg
              20                  25                  30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
              35                  40                  45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
      50                  55
```

<210> 61
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 61

```
Val Asp Asn Lys Phe Asn Lys Glu Met Arg Gln Ala Tyr Trp Glu Ile
 1                5                   10                  15

Ala Leu Leu Pro Asn Leu Asn Arg Trp Gln Ile Arg Ala Phe Ile Arg
              20                  25                  30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
              35                  40                  45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
      50                  55
```

<210> 62
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 62

```
Val Asp Asn Lys Phe Asn Lys Glu Phe Arg Thr Ala Tyr Trp Glu Ile
 1                5                   10                  15

Ala Val Leu Pro Asn Leu Asn Asn Gln Gln Lys Arg Ala Phe Ile Arg
              20                  25                  30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
              35                  40                  45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
      50                  55
```

<210> 63
<211> 58

<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 63

Val Asp Asn Lys Phe Asn Lys Glu Cys Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Val Lys Leu Pro Asn Leu Asn Asn Ala Gln Lys Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
        50   55

<210> 64
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 64

Val Asp Asn Lys Phe Asn Lys Glu Pro Lys Thr Ala Tyr Trp Glu Ile
1   5   10   15

Val Val Leu Pro Asn Leu Asn Ser Lys Gln Lys Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
        50   55

<210> 65
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 65

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Asn Ala Tyr Trp Glu Ile
1   5   10   15

Val Thr Leu Pro Asn Leu Asn Lys Trp Gln Ile Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 66
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 66

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Lys Ala Tyr Trp Glu Ile
1   5   10   15

Ala Thr Leu Pro Asn Leu Asn Lys Ser Gln Ser Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 67
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 67

Val Asp Asn Lys Phe Asn Lys Glu Phe Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Val Thr Leu Pro Asn Leu Asn Val Gly Gln Thr Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 68
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 68

Val Asp Asn Lys Phe Asn Lys Glu Leu Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Val Gly Leu Pro Asn Leu Asn Thr Arg Gln Ser Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 69
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 69

Val Asp Asn Lys Phe Asn Lys Glu Leu Arg His Ala Tyr Trp Glu Ile
1   5   10   15

Val Gln Leu Pro Asn Leu Asn Arg Glu Gln Gly Arg Ala Phe Ile Arg
        20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 70
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 70

Val Asp Asn Lys Phe Asn Lys Glu Phe Arg His Ala Tyr Trp Glu Ile
1   5   10   15

Ile Lys Leu Pro Asn Leu Asn Gly Lys Gln His Arg Ala Phe Ile Arg
        20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 71
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 71

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Val Ser Leu Pro Asn Leu Asn Thr Leu Gln Ser Arg Ala Phe Ile Arg
            20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 72
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 72

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Lys Ala Tyr Trp Glu Ile
1   5   10   15

Gln Gly Leu Pro Asn Leu Asn Asn Arg Gln Lys Arg Ala Phe Ile Arg
            20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 73
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 73

Val Asp Asn Lys Phe Asn Lys Glu Met Arg Asn Ala Tyr Trp Glu Ile
1   5   10   15

Ala Lys Leu Pro Asn Leu Asn Arg Glu Gln Lys Arg Ala Phe Ile Arg
            20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 74

<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 74

Val Asp Asn Lys Phe Asn Lys Glu Met Arg His Ala Tyr Trp Glu Ile
1   5   10   15

Val Gly Leu Pro Asn Leu Asn Met Ile Gln Gln Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
        50   55

<210> 75
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 75

Val Asp Asn Lys Phe Asn Lys Glu Leu Arg Asn Ala Tyr Trp Glu Ile
1   5   10   15

Val Lys Leu Pro Asn Leu Asn Arg Ala Gln Asn Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
        50   55

<210> 76
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 76

Val Asp Asn Lys Phe Asn Lys Glu Leu Arg Thr Ala Tyr Trp Glu Ile
1   5   10   15

Ile Lys Leu Pro Asn Leu Asn Asn Tyr Gln Arg Arg Ala Phe Ile Arg
                20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
            35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 77
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 77

Val Asp Asn Lys Phe Asn Lys Glu Pro Arg Glu Ala Tyr Trp Glu Ile
1   5   10   15

Gln Arg Leu Pro Asn Leu Asn Asn Lys Gln Lys Thr Ala Phe Ile Arg
            20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 78
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 78

Val Asp Asn Lys Phe Asn Lys Glu Met Tyr Ala Ala Tyr Trp Glu Ile
1   5   10   15

Ile Asp Leu Pro Asn Leu Asn Thr Pro Gln Ile His Ala Phe Ile Arg
            20   25   30

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
        35   40   45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50   55

<210> 79
<211> 58
<212> PRT
<213> SYNTHETIC POLYPEPTIDE

<400> 79

Val Asp Asn Lys Phe Asn Lys Glu Thr Arg Ser Ala Tyr Trp Glu Ile
1   5   10   15

Val Asn Leu Pro Asn Leu Asn Gln Gly Gln Arg His Ala Phe Ile Lys

```
         20                    25                   30
                                                         -

Ser Leu Tyr Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
         35                  40                  45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys
    50                  55
```